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STRESS RELIEVING PLATE

FIELD OF THE INVENTION

The present invention relates to a plate or washer for distributing stress from neighboring fastening elements used to anchor a drawer roller bracket assembly to a cabinet structure.

BACKGROUND OF THE INVENTION

Conventional drawer roller brackets adapted for mounting within a cabinet typically consist of a track for receiving rollers mounted on a drawer and a means for mounting the track within a cabinet. The brackets are typically mounted horizontally in opposing pairs and receive complementary rollers mounted on opposing sides of a drawer. Various means have been employed for mounting roller brackets inside a cabinet but in most instances the roller brackets must be anchored at some point along the length of the bracket to the inside of the cabinet and at the end of the bracket distal the drawer receiving opening. This end portion of the bracket comprising the anchoring portion is sometimes referred to as a drawer track boot.

The drawer track boot may be integral with the drawer roller bracket assembly or may be a distinct piece to which the drawer roller bracket may be attached. One such drawer roller bracket assembly which comprises separate drawer roller bracket and boot pieces is the Kitchen Magic drawer track bracket assembly manufactured by Amerock Industries.

Most contemporary drawer roller bracket assemblies are manufactured of plastic components because of the ease with which plastic materials can be installed and the low cost associated with their manufacture.

In addition, plastic components despite their light weight are often more durable than metal or wood components due to their resilience. This is a particularly important attribute for drawer roller brackets which are subjected to continuous weight bearing stress. In addition, regardless of the degree of care employed in installation of the roller brackets, torsional stress is inevitable as a result of uneven weight distribution in a drawer.

However, despite the advantages of employing plastic drawer bracket parts a significant drawback exists in that the fastening means for anchoring the drawer track boot inevitably becomes loose by virtue of repeated stress caused by drawer use. As a result, it is necessary to periodically tighten the fastening means (usually wood screws) anchoring the drawer track boot to the interior of the cabinet. Inevitably the tightening of the screws to secure the boot will result in the splitting of a plastic boot. In addition, repetitive torsional stress can cause splitting of the boot at the point a fastener contacts the boot. As a result, a need exists for a device to prevent splitting of the boot by the installation or tightening of the boot and also to reduce the incidence of loosening of the boot fastening means.

OBJECTS OF THE INVENTION

In view of the foregoing, it is an object of the subject invention to provide an inexpensive device that can be used to prevent damage to a plastic drawer track boot during installation and/or tightening of the drawer track boot to a cabinet.

It is another object of the subject invention to provide a device that prevents loosening of the drawer track boot caused by repeated use of a drawer associated therewith.

It is still a further object of the subject invention to provide a device that distributes stress among neighboring fastener means.

It is yet a further object of the subject invention to provide a drawer track boot reinforcement device that can be installed easily by a layman using simple hand tools.

It is still a further object of the subject invention to provide a drawer track boot reinforcement device that can be installed in existing already installed drawer track assemblies.

It is a further object of the subject invention to provide a method for preventing damage to a plastic drawer track boot.

It is a further object of the subject invention to provide an improved drawer roller bracket system including a stress relieving plate.

SUMMARY OF THE INVENTION

The subject invention is directed to a device for distributing stress from neighboring fastening elements used to anchor a drawer roller bracket assembly to a cabinet structure. The subject invention is particularly suited to be used in connection

with a plastic drawer roller bracket boot wherein the drawer roller bracket is attached at least in part to the interior of a cabinet by means of said boot. The subject invention substantially prevents the plastic drawer roller bracket boot from being damaged as a result of stress imparted on the fasteners employed to anchor the boot to the cabinetry. The subject invention also serves to prevent loosening of the fastener means anchoring the boot to the cabinetwork.

The device comprises essentially a substantially planar plate having formed therein at least one opening for receiving fastening means. The plate is preferably formed of metal but may be formed of an alternate material suitable for the purpose such as ceramic, PVC or the like. The plate is shaped to substantially conform to the shape of the mounting surface of the boot with which it is to be used.

Preferably the plate is generally L-shaped and comprises three openings formed therein to substantially correspond to the openings formed in the mounting surface of the Kitchen Magic drawer track bracket boot manufactured by Amerock Industries. Preferably the plate is fabricated of a metal material of the type typically used for fabricating washers, striker plates and other cabinetry hardware. Such materials include but are not limited to aluminum, steel, brass and alloys thereof.

The plate is mounted on the surface of the boot opposite the surface to be anchored directly to the cabinet. Fastening means such as but not limited to screws used to secure the boot to the cabinet are passed first through the apertures of the plate and next through the corresponding apertures of the boot and ultimately into the cabinet to which the fastener anchors the boot. The fasteners, such as screws, can be secured so that the head of the screws are flush against the plate without damaging the underlying plastic

boot. The force imparted by fasteners on the plate is distributed over the entire surface of the plate and underlying boot. In the absence of the plate the force of the fastener is imparted only on the plastic material of the boot that is contacted by the fasteners.

The plate can be installed during initial installation of the boot and drawer track assembly or afterward.

Other fasteners such as but not limited to nails may also be employed in connection with the subject invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of a stress relieving plate in accordance with the subject invention.

FIG. 2 is a perspective view of a stress relieving plate in accordance with the subject invention.

FIGS. 3-7 are top plan views of several preferred embodiments of a stress relieving plate in accordance with the subject invention.

FIG. 8a is a top plan view of a preferred embodiment of the stress relieving plate in accordance with the subject invention.

FIG. 8b is a cross sectional view of a preferred embodiment of the stress relieving plate according to FIG. 8a taken through line A – A'.

FIG. 9 is a perspective view of the plate of FIG. 1 prior to assembly in a drawer track boot device.

FIG. 10 is a perspective of the plate of FIG. 1 affixed to a drawer track boot device.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention is an apparatus for distributing stress from neighboring fasteners used to anchor a drawer roller bracket assembly to a cabinet structure.

The stress relieving plate of the present invention is identified generally by the numeral 10 in FIGS. 1-10. The stress relieving plate 10 includes a generally L-shaped body 20 comprising a major body 24 and a minor body 26 and at least one opening 30 formed in the body 20. Referring to FIGS. 1-7, it can be seen that the stress relieving plate 10 can comprise a body 20 with a major body 24 and a minor body 26 providing various L-shaped forms with openings 30 of various dimensions, and remain within the scope of the invention.

FIG. 1 shows a top plan view and FIG. 2 shows a perspective view of the stress relieving plate 10. As can be observed, the opening 30 can comprise any shape suitable for receiving a fastening means. Additional embodiments of the opening 30 include, but are not limited to, triangular, square, and rectangular shaped openings.

In a preferred embodiment the stress relieving plate 10 is formed of metal of the type typically used for fabricating washers but in alternate embodiments the stress relieving plate 10 may be formed of any material suitable for the purpose of stress dissipation. This material can consist of metals such as aluminum, steel, brass and alloys thereof, or other materials such as ceramic, plastic, wood, PVC or the like.

Now referring to FIG. 3, an alternate embodiment of the stress relieving plate 10 comprises one opening 30. In an alternate embodiment now referring to FIG. 4, opening 30 comprises at least two openings 30. As shown in FIG. 7, in another embodiment the plate 10 comprises at least one inlet 30 to the stress relieving plate 10.

Now referring to FIG. 9 in a most preferred embodiment the major body 24 has a length indicated by dimension "x" of about 1 11/16" to about 1 13/16" and a width of about 9/16" to about 11/16" and minor body 26 has a length indicated by dimension "y" of about 1 7/16" to about 1 9/16" and a width of about 5/16" to about 7/16" and is used in conjunction with the Kitchen Magic drawer track boot.

The opening 30 is formed in the body 20 for receiving a fastener 70 such as but not limited to a wood screw, sheet metal screw, nail, bolt or the like.

Now referring to FIG. 8a, a preferred embodiment of the stress relieving plate 10 includes a locking means 40. In a most preferred embodiment the locking means 40 is a roughened surface formed on the surface of the body 20 adjacent opening 30 that prevents the fastening means (not shown) such as but not limited to a sheet metal screw from loosening when the head of the sheet metal screw is in contact with the locking means. Now referring to FIG. 8b, in another embodiment the locking means is at least one protrusion 45 that engages the head of a fastening means such as a sheet metal screw 50. However, the locking means 40 can be any suitable means that is known in the art.

Now referring to FIGS. 9 and 10, the stress relieving plate 10 is disposed on the surface of a drawer track boot 60 on the surface 62 opposed to the surface contacting a cabinet 80. The stress relieving plate 10 is secured to the drawer track boot 60 by fasteners 70. The stress relieving plate 10 is generally L-shaped to conform to a mounting surface that supports and connects a drawer track 90 to the drawer track boot 60. In a preferred embodiment the stress relieving plate 10 comprises three openings 30 formed therein to assure communication of fasteners 70 with apertures 64 of the drawer track boot 60. The stress relieving plate 10 substantially prevents the drawer track boot

60 from being damaged as a result of stress imparted by the fasteners 70 employed to anchor the drawer track boot 60 to the cabinetry 80.

Now referring to FIG. 10, the stress relieving plate 10 is mounted on the drawer track boot 60 to be attached to the cabinetry 80. Fasteners 70 such as, but not limited to, screws used to secure the drawer track boot 60 to the cabinetry 80 are passed through the openings 30 of the stress relieving plate 10 and through the corresponding apertures 64 of the drawer track boot 60 and into the cabinetry 80. In a preferred embodiment, the fasteners 70 consists of wood screws, however other fastening elements such metal screws, bolts, and nails can be used. The force imparted by the heads of fasteners 70 on the stress relieving plate 10 is distributed across the stress relieving plate 10 and the underlying drawer track boot 60.

Now referring to FIGS. 8a and 8b, in a preferred embodiment plate 10 further comprises locking means 40 adjacent to openings 30. In a most preferred embodiment best seen in FIG. 8a locking means 40 comprises a roughened surface. As best seen in FIG. 8b in an alternate most preferred embodiment locking means 40 comprises a protrusion 45.

Numerous modifications and alternative embodiments of the invention will be apparent to those skilled in the art in view of the foregoing description. Accordingly, this description is to be construed as illustrative only and is for the purpose of teaching those skilled in the art the best modes of carrying out the invention. Details of the structure may be varied substantially without departing from the spirit of the invention and the exclusive use of all modifications, which will come within the scope of the appended claims, is reserved.